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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/493,677	01/28/2000	Kaoru Sato	43890-401	2531

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WASHINGTON, DC 20005-3096

EXAMINER

LEO, LEONARD R

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
**09/493,677**

Applicant(s)  
**Sato et al.**

Examiner  
**Leonard R. Leo**

Art Unit  
**3743**



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on August 27 and September 16, 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-9, 15-17, and 19-33 is/are pending in the application.
- 4a) Of the above, claim(s) 2 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-9, 15, 17, and 19-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 21 6) ☐ Other: \_\_\_\_\_

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### DETAILED ACTION

The amendments filed August 27 and September 16, 2002 have been entered. Claims 1-2, 4-9, 15-17, 19-33 are pending, and claims 2 and 16 remain withdrawn.

In the amendment filed December 5, 2001, applicants elected the species to Figure 3b and listed claims 1, 4-5, 17, 19-21 and 23-24 as readable thereon. However, claim 24 recites "first gaps being disposed parallel to said heat receiving face." The gaps between the fins 1 are arranged at an angle  $\theta$ . Claim 24 is withdrawn.

### *Claim Objections*

Claims 22 and 31 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Regarding claim 22, although the recitations of "trapezoid and triangle" are further limiting, the recitation of "a shape whose sectional width decreases as it extends away" is already recited in claim 1.

Regarding claim <sup>31</sup>~~21~~, the recitation of "space" should read -- spaced --.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-6, 9, 22, 25-26, 28 and 30-32 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Arnold et al (Figure 7).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 8, 15, 17, 19-21, 23, 27, 29 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold et al in view of Lin.

Arnold et al discloses all the claimed limitations except protrusions on the pillar-type protrusions.

Lin discloses a heat sink comprising a column 13 and a plurality of pillar-type protrusions 11 with unlabeled protrusions for the purpose of improving heat exchange.

Since Arnold et al and Lin are both from the same field of endeavor and/or analogous art, the purpose disclosed by Lin would have been recognized in the pertinent art of Arnold et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Arnold et al protrusions on pillar-type protrusions for the purpose of improving heat exchange as recognized by Lin.

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Regarding claims 15, 19-21, 29 and 33, Lin discloses fan 30 mounted on top of the heat sink.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold et al in view of Higgins, III.

The device of Arnold et al lacks the column and fins having the same height.

Higgins, III discloses a heat sink (Figure 2) comprising a heat receiving face 19, a tapered column 24, a plurality of fin 32 and a fan 12, wherein the column is the same height of the fins for the purpose of maximizing the heat exchange within the heat sink volume and guiding the air flow.

Since Arnold et al and Higgins, III are both from the same field of endeavor and/or analogous art, the purpose disclosed by Higgins, III would have been recognized in the pertinent art of Arnold et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Arnold et al the column having the same height of the fins for the purpose of maximizing the heat exchange within the heat sink volume and guiding the air flow as recognized by Higgins, III:

#### ***Response to Arguments***

The rejections in view of Elgar et al is withdrawn.

No further comments are deemed necessary at this time.

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*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

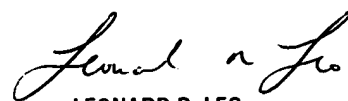
Any inquiry of a general nature, relating to the status of this application or clerical nature (i.e. missing or incomplete references, missing or incomplete Office actions or forms) should be directed to the Technology Center 3700 Customer Service whose telephone number is (703) 306-5648.

Any inquiry concerning this Office action should be directed to Leonard R. Leo whose telephone number is (703) 308-2611.

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LEONARD R. LEO  
PRIMARY EXAMINER  
ART UNIT 3743

March 24, 2003